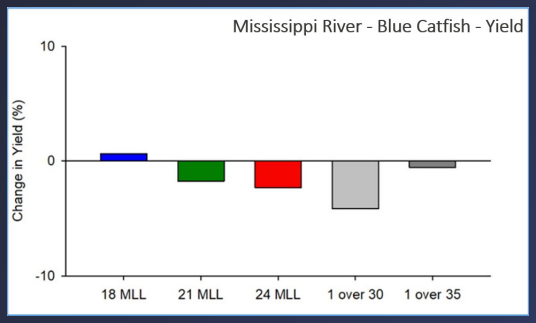
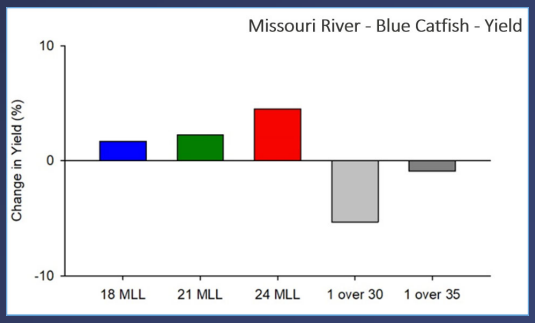
# MDC Science Branch

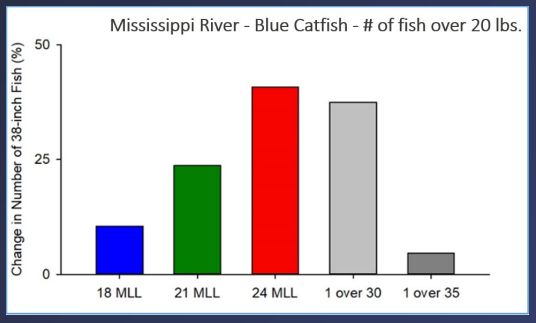
Science Notes

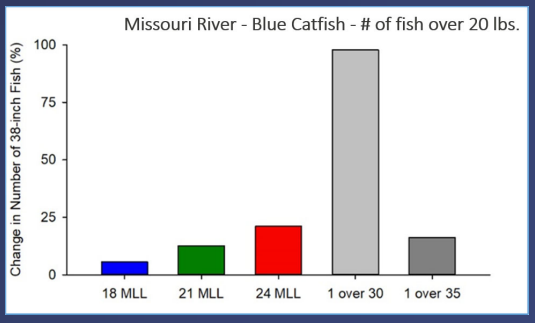
# Assessment of Big Rivers Blue and Flathead Catfish Fisheries

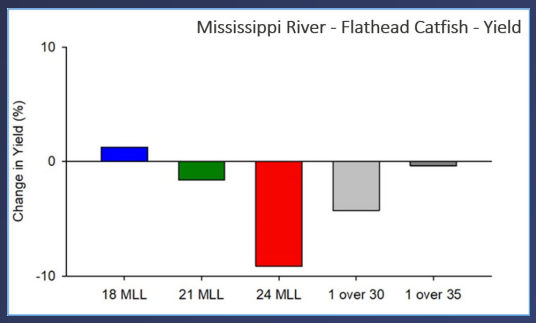
Figures 1-8. Percent change, compared to a 15” minimum length limit (MLL), in yield or number of ‘large’ blue catfish and flathead catfish in the Missouri and Mississippi Rivers under various regulations including 18”, 21”, and 24” MLLs and 1-over 30” and 35” daily limits.

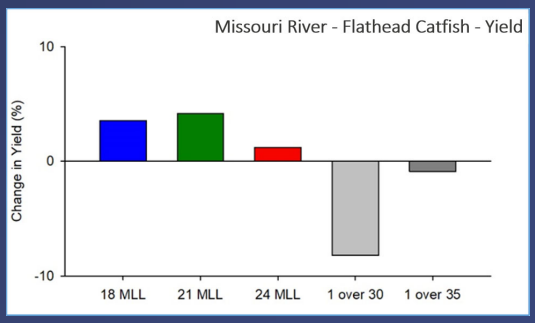


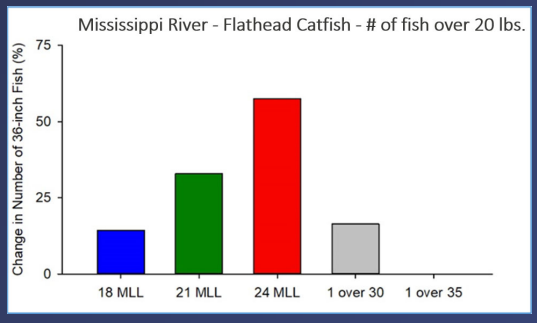



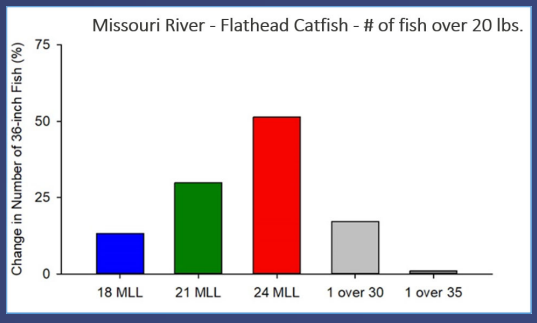



# Assessment of Big Rivers Blue and Flathead Catfish Fisheries

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**Background:** Blue catfish and flathead catfish support important recreational and commercial fisheries in Missouri. Although most sport anglers do not fish in tournaments or consider themselves trophy anglers, trophy catfish angling and catfish tournaments are increasingly popular. Studies of blue catfish and flathead catfish in the Mississippi and Missouri rivers (big rivers) were prompted by concerns about overharvest of large catfish and inadequate harvest regulations (Table 1).

Table 1. Current catfish harvest regulations.

| Species | Limits | Mississippi River | | Missouri River[1] |
|---|---|---|---|---|
| | | Sport | Commercial | Sport |
| Blue Catfish | Min. Length | None | 15” | None |
| | Daily | 20[2] | None | 5 |
| | Possession | 20[2] | None | 10 |
| Flathead Catfish | Min. Length | None | 15” | None |
| | Daily | 10 | None | 5 |
| | Possession | 10 | None | 10 |

1 Commercial catfish harvest is prohibited on the Missouri River.
2 Limits include blue catfish and channel catfish in the aggregate.

**Methods:** During 2015 to 2019, stocks were sampled to estimate exploitation (harvest rates) and population demographics (size structure, age and growth (Table 2), and total annual mortality). Blue catfish and flathead catfish were collected during spring and fall by low frequency boat electrofishing at eight randomly selected sites. All fish were measured and a subsample were weighed, aged (Figure 9), and reward tagged. Harvest regulations (e.g., minimum length limits (MLL), protected slot limits (like that at Lake of the Ozarks and Harry S Truman Reservoir), and 1-over daily limits (only one fish over 30” or 35” may be kept as part of a daily limit)) were modeled to determine their impact on yield and number of large fish (>20 lbs.) in the population (Figures 1-8).

Table 2. Average age (years) for blue catfish and flathead catfish to reach various lengths and weights in big rivers.

| Length (in) | Weight (lb) | Blue Catfish | | Flathead Catfish | |
|---|---|---|---|---|---|
| | | Age (yrs) | | Age (yrs) | |
| | | Mississippi River | Missouri River | Mississippi River | Missouri River |
| 15 | 1 | 4 | 5 | 4 | 4 |
| 18 | 2 | 5 | 6 | 5 | 5 |
| 24 | 5 | 8 | 9 | 8 | 7 |
| 30 | 10 | 11 | 12 | 12 | 10 |
| 38 | 20 | 17 | 18 | 17 | 13 |

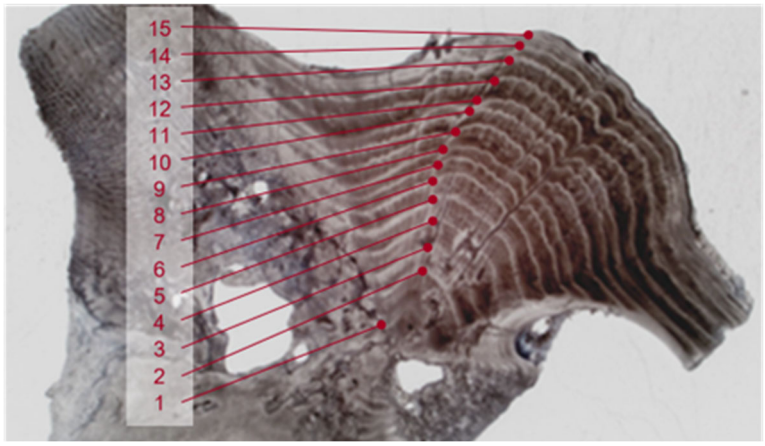


Figure 9. Annuli were counted on pectoral spine sections to determine the ages of individual catfish.

**Results:** Blue catfish (n = 6,639) ranged in length from 3 to 53” and in age from 1 to 19 years. Flathead catfish (n = 8,395) ranged in size from 2 to 50” and in age from 1 to 24 years. Estimates of annual exploitation (7-18% for blue catfish and 9-16% for flathead catfish) were within the range but on the lower end of those reported in other studies (e.g., 14-34% on the Mississippi River).

Overharvest of blue catfish and flathead catfish was not evident and current management approaches appear to support healthy populations and sustainable fisheries. If harvest remains steady, models predict that an MLL would offer the greatest improvement in yield and would have the added benefit of improving trophy fishing potential. A protected slot limit of 26-34” improved the trophy fishing potential more than MLLs but decreased yield unacceptably and were not considered further. In most cases, a 1-over daily limit decreased yield unacceptably or did not improve trophy potential as much as MLLs.

**Management Implications:** Opportunities to manage big rivers blue catfish and flathead catfish fisheries to better meet the desires of some fishers who prefer to catch large fish (i.e., size favored over yield) were identified. However, river-wide regulation changes were not necessary to prevent overharvest. Therefore, broad public support is needed to justify regulation changes that limit resource use. Concerns over localized overfishing could be investigated to explore the appropriateness of reach-specific regulation changes.

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